

Executive Summary

What is the IGES White Paper?

The White Paper “Sustainable Asia 2005 and Beyond—In the pursuit of innovative policies” has three specific objectives: i) to assess current environmental situations in Asia, ii) to review policy measures in place and, iii) to present a number of broad policy recommendations that promote sustainable development for the region. Asia presently faces formidable challenges and daunting tasks in achieving continuous economic growth, maintaining ecological integrity, and ensuring societal cohesion. What is required of Asia if it seeks to follow the path towards sustainable development? What is the scope for collective action? This White Paper explores these complex issues and intends to provide useful guidance in addressing these questions.

Where Asia stands in the pursuit of sustainable development

Driven by buoyant economic development and continuous population growth, Asia is exerting exponential pressures on natural resources and the environment. The rapid economic growth that Asia has achieved is inherently unstable due to its high level of resource inefficiency and dependence on a geometric rate of growth in fossil fuel consumption. A business-as-usual scenario will mean that Asia can neither attain the current level of production and consumption observed in developed countries nor sustain the economic and social gains made over the past three decades.

Measured against this situation, Asian responses to date have been entirely inadequate, although many important steps have been taken and a number of essential foundations for further actions established. For example, a number of initiatives have been launched at the regional level and these are helping to facilitate establishment of a common agenda and to forge consensus on at least some policy goals for sustainable development. Several sub-regional collaborative forums have made advances through concrete and institutionalised mechanisms to address challenges, such as acid deposition and dust and sand storms in Northeast Asia, haze control in Southeast Asia and trans-boundary air pollution control in South Asia. Yet, in the last quarter of a century, Asia has lost half of its forest cover and a third of its agricultural land has been degraded. Asia’s rivers contain three to four times more pollutants than the world average. Of the world’s 15 most polluted cities, 13 are in Asia. According to current trends, it is projected that 2.4 billion Asians will suffer from water stress by 2025, almost double the 1995 figure. Today, at least one in three Asians still has no access to safe drinking water, and one in two has no access to sanitation services. At least one-third of a billion tons of solid waste across Asia remains uncollected each year. At the same time, millions of tons of hazardous waste are placed untreated in dumpsites, threatening groundwater and local food supplies.

These are only some of the indicators of the attack that is underway on Asia’s environment. While rapid economic growth has created dynamism and wealth, Asia has at the same time become dirtier, less ecologically diverse and more environmentally vulnerable. Unless urgent, concerted and sustained action is taken on a large scale, Asia will be unable to avoid a social, economic and political crisis of catastrophic proportions over the medium-term. Global sustainable development cannot be achieved without Asia.

What are the major conceptual challenges?

Sustainable development should, therefore, be the central policy principle for Asia 2005 and beyond. Yet, the concept of sustainable development remains very complex and fluid. It often requires significant trade-

offs between the economy and the environment, a reality that is compounded by methodological problems and the absence of a single mechanism to take full account of long-term economic costs and benefits. Sustainable development is, indeed, a concept that is not easy to operationalise and monitor, although attempts to achieve this have been and continue to be made in both developed and developing countries. The approaches that are available, (e.g., full cost accounting, policy mix analysis and multi-stakeholder processes) are not free of defects and careful consideration is always needed in applying them to individual countries, localities and situations. There is no “one-fit-for-all” solution. The “Three Dimensional Model” of sustainable development that combines economic, social and environmental dimensions is beguilingly simple and undeniably attractive. Yet, it is difficult to operationalise in real life situations. How to precisely define the notion of inter-generational equity remains contentious, for example. This conceptual difficulty does not negate, however, the importance of sustainable development as the guiding principle that underpins the conservation of the environment and the improvement of living standards. The development of specific policies that are new and effective is important in this vein.

As the nature of environmental issues becomes more complex, combinations of different policy instruments (i.e., policy mix) have been increasingly adopted to achieve various policy goals. Policy instruments can be divided into six categories: regulatory measures, framework approach, market-based measures, voluntary agreements, procedural measures and information measures. The rationale behind policy mix is the belief that the issue in question is more effectively dealt with. However, caution should be taken, particularly in the context of developing countries, that further complication of policy instruments will not overburden the already weak implementation capacity.

Many Asian countries place more and more emphasis on multi-stakeholder and participatory approaches. Such approaches are indeed essential as the increasing number of stakeholders is involved in environmental decision-making and implementation. However, they are not without problems. The scope and application require meticulous definition. They cannot operate without a framework of norms and standards and must not be used as a tool for manipulation in decision-making and policy implementation processes. Institutional strengthening and capacity development are thus important to ensure that the various stakeholders are effectively engaged in such processes for better environmental management and sustainable development.

What will make forest management in Asia more sustainable?

What are some of the major trends affecting forestry in Asia and the underlying causes of forest loss and degradation? Despite legislative reform and progress in developing criteria and indicators for sustainable forest management, the rates of deforestation remain high in many countries, increasingly sustained by illegal logging activities. Although commonly justified as necessary to promote ‘development,’ deforestation has often undermined the livelihoods and well-being of forest-dependent communities.

Fast-wood industrial plantations have been presented as an instrument that can meet the demands for timber of the rapidly growing Asian economies and earn much-needed foreign exchange. However, large-scale, mono-crop plantations remain highly contentious. Critics contend that the rights and concerns of local people are often ignored by plantation owners and governments, that natural forest is cleared to establish plantations, and that plantations require intensive irrigation and the application of pesticides which can both be detrimental to the surrounding ecosystems. Large-scale plantations must be made more socially acceptable, and smaller, locally-managed plantation models, such as outgrower schemes, should be considered possible alternatives.

Forest certification is introduced with reference to whether the market can succeed where the government

has failed to properly manage forests. New strategies are emerging that suggest ways of overcoming some of the obstacles that have constrained certification in Asia. Stepwise certification has been proposed as a means of gradually building the capacity of producers to achieve certification. Buyer groups have been formed to link producers with markets. Strategies to make certification more accessible to small-scale producers include simplified and less costly methods.

New policies to promote community forestry in Asian countries are another acknowledgement of the limitations of governments in managing forests. Lessons from throughout Asia reveal that for community forestry to succeed, individual schemes must be finely-tuned to reflect local circumstances. A successful community forest requires secure land tenure, a voice for marginalised groups in decision-making and strong institutional support.

Protected areas are also an increasingly important feature of forestry in Asia, gaining popularity as a policy instrument from the 1970s onwards. However, the early protected areas tended to exclude local people and uproot their livelihood. Protected areas are most likely to succeed when they incorporate buffer zones and enclaves that allow local people to fulfill their livelihood needs. New approaches that combine the protected areas with the creation of employment opportunities are also suggesting ways forward.

Trade liberalisation has a significant impact on forest management. In contrast to international trends, import and export tariffs can be an effective means to encourage regenerative forestry and discourage exploitation forestry, respectively. Non-tariff trade measures are also examined, especially bilateral and regional instruments that curb the flow of illegal timber.

How can the Asian water crisis be better dealt with?

Although Asia has a significant amount of fresh water resources in total, the per capita availability is limited to only about 4,000m³/year, which is less than half of the world average. Substantial variance exists among countries (Shiklomanov, 2000). South Asian countries, such as Pakistan and India, have the least water resources on a per capita basis. The quality of water is also deteriorating. Biological oxygen demand (BOD) and suspended solids in Asian rivers is respectively 1.4 times and 4 times higher than the world average (UNEP, 1999). Pollution with heavy metals, such as arsenic and lead, is also a serious threat in certain parts of Asia. Pollution has further reduced the already limited amount of water available. Asia is still the region where the largest numbers of people live without access to safe water and adequate sanitation. Health and economic costs associated with these problems are tremendous, and further population growth and economic development will exert increasing pressure on the already scarce water resource base in Asia.

A drastic shift in water management policy is considered necessary for countries to deal with the crisis situations over fresh water resources predicted in many parts of Asia. Truly cross-sectoral integration has to be in place, more decentralisation has to be promoted, and demand-driven management should be more extensively introduced. Stakeholder participation also holds the key to successful water resources management. In this age of globalisation, the interaction between international, national, and local stakeholders is essential to advance new approaches to effective water management. An initiative taken by the Global Water Partnership (GWP) to assist in preparing national/regional water vision proved that point.

Integrated water resource management (IWRM) is an attempt to change the fragmented water management currently in place. Countries such as Thailand, Philippines, and China have promoted a major reform in water resource management. A more strengthened water ministry has been established by combining water-related departments scattered throughout different ministries, and an apex body has been set up for

the overall coordination of water-related policies. At the same time, decentralisation has been promoted. River basin management has been more widely introduced in many countries in Asia. Consequently, local stakeholders began to participate more in river management and the national government has started to assume a more coordinating role.

Access to safe water has been among the top priorities in Asia. Given the huge investment necessary to address this issue, the public-private partnership (PPP) has been promoted for years as a promising solution. In this respect, Manila's success and failure provides useful lessons regarding both potentials and risks associated with PPP. The delegation of management responsibility to local communities and a strong commitment generated among local water managers by an incentive system proved to be a key to successful water supply under PPP. A water supply project in Dhaka indicated that NGOs could take a leading role in promoting community participation and raising their ownership of the project.

Certain technologies can provide solutions to deal with water scarcity, at least partially. Such technologies include those for water reuse and recycling, seawater desalinisation and water harvesting. Among them, water harvesting is an old practice, but it has attractive features, such as low cost and simple and easy maintenance. Consequently, water harvesting has gained popularity among an increasing number of developing countries such as Thailand and India.

How can climate change concerns be mainstreamed in Asia?

Climate change is a major global challenge but it is also an essential challenge for Asia to promote sustainable development. Since the 1970s, global, climate-related disasters have claimed over a half a million lives in Asia. While the annual per capita greenhouse gas (GHG) emissions in developing Asia (1-2 tons) is still ten to twenty times less than that of the industrialised countries, the total emissions from Asia, which currently account for 20 per cent of the world total, are increasing quickly due to rapid economic and population growth.

Asian policy-makers acknowledge that combating climate change is vital but they believe that such efforts should not prevent economic growth, poverty eradication and the improvement of local environmental quality. While many countries have begun to address climate issues in different ministries, climate change is not a high priority yet and is not mainstreamed in the development plans and policies.

Mainstreaming of climate issues in development planning can be done at both the policy and operational levels. Integrating climate concerns at an early stage of project planning can save enormous resources. A pilot study on integrating climate change in road design showed that climate-proofing could be highly cost-effective with an internal rate of return above ten per cent. On a national level, the mainstreaming process can be accelerated through the incorporation of climate concerns into important national strategies and plans such as those related to sustainable development, environment and poverty reduction. Strengthening local institutional networks and raising the capacity of policy-makers at all levels are crucial to making progress in this direction.

Renewable energy promotion, the clean development mechanism (CDM), and the adaptation to climate change, offer several opportunities for mainstreaming climate concerns in the Asian context. The promotion of renewable energy, for example, has several side benefits besides GHG mitigation. Countries such as China, India, Japan and the Republic of Korea (ROK) have established a policy framework for the promotion of renewable energy, while others have introduced measures to exploit renewable energy such as solar and wind. Although the slow pace of affordable technological development and the high investment costs currently limit the use of renewable energy in several Asian countries, recent high oil prices may pro-

vide the impetus to move forward in this area.

As the CDM is aimed at both GHG mitigation and sustainable development, it can be an effective tool for mainstreaming climate concerns in development. Currently, Asian countries are leading in CDM project development but several concerns related to its implementation have surfaced. Surveys and workshops by IGES revealed many barriers to implementation. They include a lack of coordination within government, a lack of financial incentives, and a lack of awareness, to name a few. Measures, such as the integration of the CDM in related sectoral policies, should be taken to address them.

In Asia, adaptation to climate change has become an urgent challenge because of the region's high vulnerability characterised by large and relatively poor populations. The challenges to mainstream adaptation concerns in the developmental plans at local and national levels are assessed and some options to overcome them are recommended. Mainstreaming adaptation in national planning, such as the one in Kiribati, could serve as a model for other small island countries.

Since the design of a future climate regime beyond 2012 has significant implications for sustainable development in Asia, it is recommended that Asian policy-makers be proactive in ensuring that such discussions consider the genuine concerns and developmental aspirations of the region. The discussions must facilitate synergies between climate-related measures and sustainable development, not only through the provision of necessary incentives, but also through the effective restructuring of the CDM and the encouragement of adaptation, especially in the vulnerable regions and communities. Raising the policy profile of climate change within the context of sustainable development, and the need for policy coherence in finding win-win solutions and preventing maladaptations in the region, are considered crucial in realising the vision of a sustainable Asia.

What approaches are effective to deal with the urbanisation environmental crisis in Asia?

Asian urbanisation is unprecedented in terms of size, speed and level of urban transformation. As a result, urban environmental problems have significantly deteriorated. The ambient air quality in many mega-cities far exceeds the World Health Organization's (WHO) standards, a significant number of urban dwellers are still without access to adequate water and sanitation services, wastewater treatment in Asian cities is grossly inefficient, and disorganised solid waste disposal has posed almost crisis situations in mega-cities in Asia.

The crux of the urban environmental problems lies in the insufficient capacity to deal with them. In many countries, local authorities lack the mandate and human resources to handle environmental problems. Appropriate policy measures are neither introduced nor implemented; financial resources are too small to cope with the problems; and, mobilisation of the stakeholders is still limited.

The financial constraint amongst them is the most critical issue confronting urban decision-makers. Imbalance in the sharing of financial resources between the central and local governments is one of the key barriers to expanding the urban environmental infrastructure. While decentralisation of environmental governance is slowly but steadily taking place in Asia, its true effectiveness will not be achieved without establishing a sound financial basis at the local level. At the same time, a number of Asian cities are competing with each other for foreign investment, often by compromising local environment standards and offering tax breaks. The consequence tends to be more pollution and less revenue, at least over the short-term. Thus, a common set of environmental standards and collective action among competing cities is considered necessary to prevent this downward spiral.

To fill the financial gap, burden-sharing through public-private partnership (PPP) has often been used in Asian cities. Past experiences with PPP indicates that success depends, in general, on clear rules and regulations, distinct demarcation of responsibility, mechanisms of risk mitigation and the appropriate consideration of size and type of the project in question. Community-based initiatives offer alternative or complementary solutions to deal with the financial constraints faced by many municipalities. Successful local initiatives require careful consideration of the local social context, clear roles for NGOs and other actors, a sense of ownership shared by community members, and the appropriate size and type of a project.

One cannot rule out the usefulness of the top-down regulatory approach for urban environmental management in Asia. Environmental regulations and standards have worked in many Asian cities, although they are not comparable to the scale of the problems of coping with solid waste, waste-water, transportation and air pollution. They seem to have been effective in cases where specific technologies are identified, targeted activities are focussed and well-defined, and major stakeholders are limited in number. In many other Asian cities, however, limitations of the regulatory approach seem to have arisen from inadequate institutions and enforcement mechanisms.

An increasing number of local initiatives have been conducted in Asia to deal with the urban environmental crisis. However, owing to the locally-specific conditions of individual cities, how far the lessons learned from one city can be generalised remains the question. They are driven by local context, and there is no “one-fit-for-all” solution for urban environmental issues. Still various international agencies and inter-city networks working in the region have helped to collect and disseminate successful cases implemented in many cities and to document effective policies and practices. One of the major drawbacks of these attempts seems to lie in too much attention to successful cases and less upon unsuccessful or failed experiences. Another drawback has been the weak mobilisation of available financial support, in particular, through inter-city cooperation networks. Still, it should be emphasised that direct communication among municipalities is essential and will be increasingly important in the future.

What steers business towards sustainability?

Business, as the engine of much of Asia’s recent economic growth, plays an important role in achieving the environmental security in Asia. Voluntary initiatives have been taken by business in response to global environmental concerns, market-based measures have been more extensively adopted, and future innovative business models have emerged that lead society towards sustainability.

To date, as a voluntary initiative, Asia has responded relatively well to the requirements of the environmental management systems (EMS) that include the International Organization for Standardization (ISO) standards. The number of ISO certified companies in Asia is the largest in the world. Though such companies are still on the increase, the annual growth rate has slowed recently, indicating the difficulties faced by small and medium enterprises (SMEs) to join. There may be as many as 50 million SMEs in Asia and the EMS initiatives have captured only a fraction of them.

There is a steady increase in the number of environmental/sustainability reports prepared by companies in Asia as stated in the guidelines set out by the Global Reporting Initiative (GRI) and the Global Compact Initiative (GCI). Environmental and sustainability reporting is the foundation for information disclosure on the environmental performance of a company but attention to such reporting is still not high enough. Awareness should be raised even among national and local authorities regarding the importance and usefulness of such reporting. Government and business need to join forces in supporting voluntary initiatives and draw upon market mechanisms through the reconfiguration of national environmental policies and strategies.

In this respect, it should be noted that there is a conspicuous absence of major Asian financial institutions from the list of signatories to such global sustainability initiatives as the Equator Principles and the socially responsible investment (SRI). Environmental and sustainability reporting would be further promoted if more financial institutions in Asia responded proactively to SRI. Pension funds seem to have a great potential to engage in SRI because of the growing ageing population in Asia.

The market for environmentally-sound goods and services has expanded in many Asian countries. Now many economies are promoting environmental labelling programmes. But, the effectiveness of eco-labelling schemes in Asia needs to be improved further, not only by strengthening relevant policies but also by raising awareness on the part of consumers. Also important to note is the cost gap between eco-products and conventional products. Innovative policy measures, such as the promotion of green procurement and purchasing, are needed to reduce the cost difference.

Business has a key role to play in building a sustainable Asia and ensuring that economic growth can continue to promote environmental security. But the proactive business initiatives for social and environmental concerns are exceptions rather than the norm in most developing economies in Asia. Strong government leadership is necessary in this respect to create policy conditions to help implement more win-win solutions. Concerted efforts are necessary among business, governments, civil society and local communities to find innovative approaches to better deal with the social and environmental challenges that draw upon positive market forces and further promote voluntary initiatives and constructively reconfigure traditional environmental policies.

How should environmental education be transformed to be a part of the broader sustainable efforts?

Capable and well-motivated human resources are the most essential element to achieve sustainable development. A range of effective measures in relation to formal, non-formal and informal education is the primary tool to develop the human capacity required for sustainable development. Encouraging environmental education practices are abundant in Asia in various forms and such efforts are still expanding.

The contribution of environmental education to sustainable development is demonstrated in a number of cases at the local level. However, the impacts of educational measures on a much broader scale have not yet been clearly demonstrated with substantiated evidence. Therefore, considering the critical importance and urgency of realising the vision of a sustainable Asia, serious efforts are needed to reorient education policies and programmes and enhance their relevance and effectiveness in contributing to the attainment of sustainable development.

In response to the shift of focus towards the contribution to sustainable development, four important principles are emerging globally: 1) environmental education should readjust its focus from ecological concerns to interlinking relationships among socio-cultural welfare, economic livelihood and environmental quality; 2) an integrated approach should be employed to enhance inter-linkage and collaboration among educational programmes in different sectors, ranging from formal/non-formal education to training and public awareness-raising; 3) appropriate institutional arrangements should be introduced to best support the notion of education for sustainable development; and 4) an effective policy mix should be employed within the educational field and in the non-education field though the combination with other policy instruments.

In line with the above principles, proposed actions by countries in the region would include: 1) the establishment of a national multi-stakeholder process to develop a coordinating mechanism for education for sustainable development; 2) the development of a national master plan for education for sustainable devel-

opment; and 3) the development of an institutional arrangement to ensure the “whole-government” approach. Such an arrangement should draw a strong political commitment from the top-level leadership and facilitate the establishment of inter-ministry coordination mechanisms on policies and programmes to promote education for sustainable development. These actions are considered imperative to promote capacity-building for government officials in all sectors and to reorient existing policy instruments across all ministries concerned. Particular attention should be paid to governmental functions in terms of linking national and local activities to international initiatives through regional networking, for example.

What measures are necessary to move towards a sustainable Asia?

Conclusions and recommendations

- **Significant and immediate actions are required at all levels throughout Asia – the need for change is urgent.** Taken as a whole, Asia is committing ecological suicide. The environmental capital in Asia is already scarce and it is being eroded further by population and economic growth. Further decline of the environmental capital risks not merely a reversing of the economic gains made over the past three decades, but the more general undermining of the welfare of Asia’s citizens and a social and political collapse. This is widely recognised by policy-makers in the region, but the actions and responses thus far are wholly inadequate to the needs of the situation and the magnitude of the challenge. The Ministerial Conference on Environment and Development (MCED) for Asia and the Pacific, held every five years, represents a very modest step in the right direction. The stark and foreboding realities of Asia’s overall development trajectory call for an inter-governmental summit at the highest levels, such as the meetings that led to the establishment of the United Nations in 1946 and ASEAN in 1967. Shared regional policies and practices to promote renewable energy and resource efficiency are required immediately as an incentive to innovation and the emergence of relevant technologies.
- **Continued high economic growth rates are imperative for Asia to tackle the vicious cycle of poverty and environmental degradation.** Although the debates about economic growth versus the environment are old, they continue to exert considerable influence on policy discussions and policy choices. Within the global environmental movement is a school of thought that is strongly eco-centric and bio-centric and that prioritises ecological concerns and opposes economic growth. Such thinking is totally unrealistic, especially for Asia. In Asia, there are 700 million poor in more than 20 countries who have an income of less than US\$1 per day. Without significant and sustained economic growth, they and their children will continue to be trapped in a vicious cycle of poverty. Thus, while economic growth remains an unequivocal necessity for Asia, it becomes equally important that this be combined with strategies, policies and measures to secure environmental sustainability. Achieving the combination is a daunting challenge. It is important to move beyond the endless glib talk of ‘win-win’ scenarios that have come to characterise much of the public discourse and which serves mainly to divert attention from the difficult choices, trade-offs and opportunity cost judgments that are required. It has become essential for Asia to establish the intellectual and institutional framework required to identify clearly those difficult choices, trade-offs and opportunity costs. This framework does not exist at the moment and establishing it should be a matter of highest priority, for it is only through such an approach that it will be possible to combine the twin imperatives of economic growth with environmental sustainability.
- **Policy goals and objectives must be accompanied by effective policy instruments to produce actual impacts.** In the past, Asian countries have developed many master plans and action plans

underpinned by specific legislation mainly in response to international initiatives. This trend still continues. For example, many Asian countries are in the process of formulating a national implementation plan for the Stockholm Convention on chemicals. Also, some Asian countries have started to develop basic policy documents on the Decade of Education for Sustainable Development (ESD). The same trend has been observed in the private sector as well. Although various voluntary measures, such as ISO 14000, have been developed and are being applied in many parts of Asia, Asian perspectives have not been fully incorporated. Asia should be more proactive in its participation in and launching of global initiatives for sustainable development.

- **Environmental policies should be integrated into sectoral policies because environmental issues are inherently related to many sectoral activities.** Forest management, for example, is closely related to land use policy, land tenure, agriculture and watershed management. Without policy integration, sustainable development cannot be promoted. However, the idea of policy integration itself is elusive and understood in a different way in different circumstances. Although policy integration is considered still marginal as far as climate change issues are considered, substantial integration has been taking place in many sectors. For example, fresh water management has now moved into integrated management by incorporating fully environmental implications which can be contrasted with the original narrow focus on water pollution. Likewise, the forest sector fully incorporates environmental factors. This is accepted by many consumers now who prefer environmentally-certified woods. In this case, more participatory and transparent policy formulation is considered necessary and involves a wide range of stakeholders.
- **A policy mix must be developed and applied in response to the changing surrounding conditions.** As environmental matters become complex, many stakeholders are involved in the policy formulation and implementation. To be effective in responding to such changing situations, policymakers must consider not only regulatory measures, in which government plays the dominant role, but also the programme approach, market-based measures, information and procedural measures, in which many stakeholders work together to achieve common goals. Already this has happened in various countries in Asia. Environmental impact assessment is now the norm rather than the exception and the use of economic instruments has become more and more popular. Voluntary agreements, for instance, in promoting air pollution control and GHG emission reductions that are already successful in Europe can be replicated in Asia.
- **Regulatory measures will continue to be vital in the promotion of environmental management.** Strong government intervention in the domain of environmental management is indispensable, particularly when there is a need to generate clear policy impacts immediately. Regulatory measures can be quite effective when they are introduced by local governments because the specific conditions that each company faces may be better reflected in the regulation. Also, it is important to point out that regulatory measures are also effective in facilitating technological development. The case of the emission controls of automobiles illustrates the correlation between regulatory measures and technological development.
- **The conduct of business and industry in Asia will determine whether or not economic growth and environmental sustainability can be jointly achieved.** This will happen only if market mechanisms are aligned to the production of environmentally-sound goods and services. Green procurement is already prevalent in Europe. Thus far in Asia, only Japan has adopted a green procurement act, but green purchase networks, or coalitions of consumers and producers, are now gaining

momentum elsewhere in the region, including the ROK, the Taiwan Province of China and Thailand. Voluntary ecolabelling programmes and consumer networks have been forging new markets for green products and services and enlarging existing markets. Such markets are beginning to include recyclable materials, biomass and other renewable energy sources. China's wind power concession approach and tendering system for developing mega-wind farms shows an interesting example of government intervention in creating market mechanisms for renewable energy development. China's Renewable Energy Law that will enter into force in 2006 warrants close monitoring to assess its impacts on developing market mechanisms. More generally, an Asian business for sustainable development framework should be constructed with reference to the following factors:

- a. There are positive relationships between environmental regulation and technological innovation. Regulation is essential as a stimulus to those who are making slow progress.
 - b. Regulation will be increasingly required as an enabling framework which needs to encourage change rather than act as a rigid system of rules and procedures.
 - c. Early signals by governments about new regulations, flexible instruments and credible, long-term objectives can promote the development and adoption of new technologies.
 - d. Businesses and policy-makers must be made more aware that corporate environmental management not only offers opportunities but also poses problems.
 - e. Political intervention must not only provide economic incentives but also promote information exchange and learning among businesses. Such intervention needs to address explicitly the costs and benefits of environmental gains and seek appropriate policy instruments that address the needs of those marginalised—the so-called “losers.”
 - f. The often-cited adage by industry that we should leave choices to consumers as the ultimate arbiters of consumer preference is flawed. The evidence indicates the need for incentives to support green consumerism.
 - g. Environmental policy has to look at the opportunities and barriers for greening production and consumption and identify points for strategic intervention.
- **Asian countries should assume a proactive role in advancing the architecture of the future climate change control regime beyond the first Kyoto Protocol commitment period of 2008–2012.** As Asian countries will have a great deal at stake in this issue in terms of GHG emission reductions, conserving/developing carbon sinks and adapting to climate change, they should assume a proactive role. Their goal should be to champion a global climate change control regime conducive to greater gains in rolling back carbon emissions and in generating the international political will required for sustainable development.
 - **Building and supporting institutional arrangements for policy implementation remain vital tasks for Asian countries.** Policies that reflect noble philosophical principles carry no meaning if they are not implemented. Loopholes and discretionary enforcement of policies create suspicion among stakeholders and undermine the very foundation of policy implementation. Across Asia, there is an urgent need to strengthen the institutional capabilities that are prerequisite to effective policy implementation. This may be particularly true with the forestry sector. The proportion of

illegally harvested timber is still substantial and it is claimed that a lack of accountability and transparency in forestry management and administration is culpable. On the other hand, it is important to note that the institutionalisation of community-based forest management has been yielding positive results in promoting sustainable forest management. In the same vein, recent developments in river basin organisations underline the benefits that can flow from stakeholder participation in integrated river water and basin management.

- **The increased involvement of local stakeholders through appropriate institutional arrangements is considered desirable for enhancing the effectiveness of activities and compliance in all natural resource management issues.** While stakeholder involvement in the implementation phase has progressed steadily, their involvement in public dialogue and decision-making processes remains relatively limited and is still not widely institutionalised. In the past many attempts have been made to develop national Agenda 21s involving many stakeholders. A national multi-stakeholder dialogue process was called for in connection with the development of national master plans for ESD. With the exception of a few countries, the effects of such a policy dialogue in Asia have not proved durable. It is vital, having learned from past experiences, to develop a scheme that will optimise the representation of various stakeholders in policy dialogues and the formulation processes in emerging policy issues.
- **Institutions and mechanisms at regional and sub-regional levels must be further strengthened, given the fact that Asian trans-boundary environmental problems will increase with time.** In the public sector, regional/sub-regional collaboration might well start with collective data collection, analysis and monitoring arrangements. These might develop into financing pilot projects and subsequently facilitating the implementation of common policies. Inter-city cooperation would flourish if there were an effective institutional set-up that facilitated information exchange and dialogue and had a sound financial basis.
- **Although caution and prudence are required, public-private partnerships (PPP) and certain community-based initiatives show promise as models to ensure the financing required to deliver environmental goods and services.** Such arrangements are increasingly evident in water supply, solid waste and sewage management. Since the level of funding differs from one project to another and commitments from stakeholders are different, there is no single funding formula that instantly converts problems into opportunities. The continuous collaboration of stakeholders concerned is the basis for making partnerships successful. Governments, research communities and international aid agencies can bolster the replication of successful partnership arrangements through capacity-building that can include the preparation of handbooks and the undertaking of training.
- **Socially Responsible Investment (SRI), including the use of pension funds, should be further promoted in Asia.** It will be essential to explore ways for influencing individual and institutional investors to shift their investment into more environment-oriented or sustainable development-oriented projects and fund management. Again, these issues are interwoven with green market development, consumers' awareness-raising and international network development.
- **Asia must make the best use of the opportunities provided under the Kyoto Protocol for climate change mitigation.** The clean development mechanism (CDM) has been promoted as a way to enable developed countries and developing countries to collaborate to reduce GHG emissions and conserve/develop carbon sinks/reservoirs. By combining carbon sequestration with other socio-

economic benefits, the CDM can contribute to the promotion of sustainable development in developing countries and the enticement of investment. CDM activities, however, remain hampered by the weak state of policy guidance for the application of the CDM. Much clearer policy guidance is required and should be accorded a high priority by Asian countries.

- **Many technologies for renewable energy are already available but they have not yet reached localities where renewable energy sources could be best explored and applied.** Policies and mechanisms conducive to knowledge dissemination and technology transfer are clearly required. Such policies typically involve the protection of intellectual property rights and the creation of markets for such technologies. With respect to the latter point, international investment schemes, such as the CDM, have great potential to expand the use of environmentally-sound technologies for enhancing energy efficiency and reducing GHG emissions. Careful application of biotechnology may also bring about multiple benefits to local communities and investors for promoting the sustainable use of natural and genetic resources.
- **Simple technologies can make a significant difference in some sectors:** Rain harvesting and biogas digesters are examples. Catalytic, financial and technical intervention by the government or intermediaries can increase the success of these simple technologies and moreover, the financial requirements of such projects are not high. Stakeholders must assess the potential of technological interventions in tackling environmental challenges and explore ways for introducing such simple technologies.
- **A salient policy framework to facilitate the production and dissemination of reliable information on critical environmental and sustainable development issues is imperative for Asia and only governments can provide the required lead in this regard.** Proper modalities should be developed to monitor and ensure that the information is credible and provided in conformance with standards. The Freedom of Information Act (FOIA) has been promoted in other regions, but is not widely adopted in Asia. Paragraph 128 of the Johannesburg Plan of Implementation calls for ensuring access to environmental information and judicial and administrative proceedings. Asia does not have a regional policy framework like the Aarhus Convention.
- **The CDM and adaptation measures promoted in the context of climate change mitigation should be linked to the improvement of poor people's livelihood.** Agroforestry, coupled with watershed management, for example, could generate multiple benefits, such as income-generating opportunities while at the same time conserving carbon sinks/reservoirs. Adaptation measures could be made useful, if properly designed, to strengthen the preparedness for droughts, floods and other natural disasters and for reducing the vulnerability of communities to extreme climate conditions.
- **Illegal timber harvesting can be curbed through codes, standards and restrictions that are entirely compatible with World Trade Organization (WTO) rules.** In this respect, voluntary timber import licensing schemes between European countries and Asian timber exporting countries deserve close attention to see if they can successfully reduce Asia's illegal timber trade.

Towards a Sustainable Asia

Achieving a sustainable Asia is essential for the future of all humankind and for the natural environment it inhabits. Yet Asia finds itself today far more on a course towards human and ecological collapse than to

sustainability. To reverse this will require a renewed and intensified collective effort across Asia as a whole, beginning with the recognition that Asia's prospects for longer-term economic growth, social development and political stability depend directly on strategies, policies and actions to achieve environmental sustainability. Unless urgent, concerted and sustained action is taken on a large scale, Asia will be unable to avoid a social, economic and political crisis of catastrophic proportion over the medium-term.

There is no panacea for the promotion of sustainable development. It will take various forms in individual countries. Yet, there are shared patterns and a broad range of common problems and challenges that define the reality of Asia in the early years of the 21st century. There will be a need for shared strategic and policy agendas if Asian countries and communities are to successfully confront successfully these problems and challenges. It is hoped that this report will help to focus attention and political will on at least some of the shared agendas that will be required. Asia must take renewed and intensified collective measures to avoid ecological collapse. It must recognise that its prospects for longer-term economic growth, social development and political stability depend directly on strategies, policies and actions to achieve environmental sustainability.